OFFICE OF TOXIC SUBSTANCES REV. 7/27/82

CODING FORM FOR GLOBAL INDEXING

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TOXICOLOGICAL PROPERTIES AND INDUSTRIAL HANDLING HAZARDS OF DOWANOL TBH WITH COVER LETTER

Chemical Name (300 per name) — 25	CAS No. (10) — 24
TRIETHYLENE GLYCOL MONOBUTYL ETHER	143-22-6

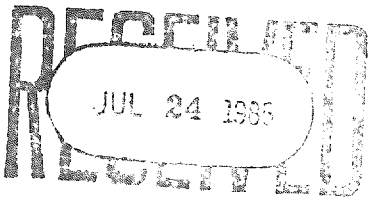
CC 8/2/85

IB

THE DOW CHEMICAL COMPANY

MIDLAND, MICHIGAN 48674

July 22, 1985



Document Control Officer
U.S. Environmental Protection Agency
TSCA-8D1
P.O. Box 2060
Rockville, MD 20852

Re: OPTS-82022

Dear Sir or Madam:

As required by 40 CFR 716, as amended effective June 20, 1985 we herewith submit copies of reports of 12 health and safety studies.

Each report is marked with an identifying number at the top of the first page of the report, e.g., D-1722. Use of this identification number in future correspondence regarding this submission will facilitate handling of questions.

The index required by 40 CFR 716.6(b) is enclosed. It lists the Dow identification number and title of each report submitted in CAS number order.

Dow manufactures three products, Dowanol* TMH, Dowanol TEH and Dowanol TBH, which are, respectively, the monomethyl, monoethyl and monobutyl ethers of polyethylene glycol. Each contains 70% or more of the respective monoalkylether of triethylene glycol. Further, the monoalkyl ethers of polyethylene glycol were listed on the Initial Inventory, respectively, under CAS numbers 9004-74-4, 27879-07-8, and 9004-77-7. Thus, for puposes of this submission, please understand that the products reported on the Inventory correspond to products which are listed on the enclosed index as follows:

9004-74-4	contains	112-35-6
27879-07-8	contains	112-50-5
9004-77-7	contains	143-22-6

*Trademark of The Dow Chemical Company

1C

These reports contain some information which is not relevant to health or safety studies of listed chemicals, e.g., references to unlisted chemicals, marketing or process data, account numbers, internal document identification codes or distribution lists. Such information has been deleted from all copies submitted.

Very truly yours,

Leroy Hampton /Rhd.

Leroy Hampton
Research Associate
Regulatory and Legislative Issues
Health and Environmental Sciences
2020 The Willard H. Dow Center
(517) 636-6226

rt

Enclosures

1D

TOXICOLOGY RESEARCH LABORATORY DOW CHEMICAL U.S.A. 8782160741

SUBMITTED BY	CHARGE	DATE	K NUMBER
		October 28, 1974	

TOXICOLOGICAL PROPERTIES AND INDUSTRIAL HANDLING HAZARDS OF:

DOWANOL TBH

D-001723

REPORTED BY: L.W. Rampy, P.A. Keeler, H.O. Yakel CHECKED BY: K.J. Olson

INFORMATIVE SUMMARY WITH CONCLUSIONS BASED ON THE SAMPLE RECEIVED. ADDITIONAL INFORMATION INCLUDING THE EFFECTS OF REPEATED EXPOSURE MAY BE REQUIRED AS SPECIFIC USES AND FORMULATIONS ARE DEVELOPED OR IF PROCESS CHANGES OCCUR.

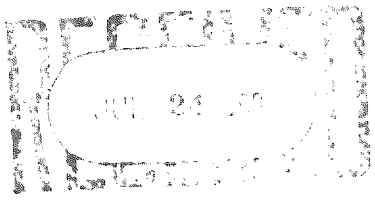
A sample of DOWANOL TBH, a yellow liquid, was submitted to Toxicology Research Laboratory for evaluation of acute oral toxicity, eye and skin irritation properties, acute inhalation toxicity, and for definition of industrial handling hazards involving acute exposures. The test material is used as a solvent. The Toxicology Research Laboratory and/or Industrial Hygiene should be consulted for recommendation of additional safety evaluations which may be needed to support manufacture and use of this test formulation.

The acute oral toxicity of the test formulation is low. There is little likelihood that internal injury would result from ingestion of amounts of the material one might encounter incidental to industrial handling.

Eye contact with the test formulation would likely result in moderate conjunctival inflammation, slight iritis, and moderate corneal injury. If contact occurs, contaminated eyes should be flushed with copious amounts of flowing tap water for at least 15 minutes. Safety glasses with side shields are recommended whenever the likelihood of eye contact exists.

Prolonged skin contact with the test formulation would likely result in slight redness. Repeated skin contact may produce scaling. The formulation is not likely to be absorbed through the skin in acutely toxic amounts. Reasonable care and cleanliness practiced during industrial handling should avert skin contact problems.

No problem is anticipated from a single, short-term exposure to the vapors of the test material at room temperature.



DISTRIBUTION

000002

FORM C-37310 R-8-74

CHEMICAL BIOLOGY RESEARCH
INDUSTRIAL HYGIENE AND TOXICOLOGY SECTIONS

GENERAL

DOW CHEMICAL U.S.A.

MIDLAND, MICHIGAN

DATA SHEET OF PROPERTIES, HEALTH HAZARDS, AND PRECAUTIONS FOR SAFE HANDLING OF MATERIALS

MOLECULAR FORMULA		NAME: DOWANOL TBH
MOLECULAR WEIGHT	INDUSTRIAL HYGIENE STANDARD	SYNONYMS: Triethylene glycol butyl ether & highers;

STRUCTURAL FORMULA OR COMPOSITION

DOWANOL DB	6%
DOWANOL TB	60%
DOWANOL 4B	28%
DOWANOL 5B	6%

PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT	EXPLOSIVE LIMITS (% VOL. IN AIR)	FLASH POINT	IGNITION TEMP.	MELTING POINT	VAPOR PRESS. mm/g. 25°C.
(reflux, min.) 515°F mmHg.		°F	°C	°C	

CORROSIVENESS (To Common Metals)	PHYSICAL STATE	COLOR
Low	Liquid	Yellow (clear)

CHEMICAL REACTIVITY	ODOR (Include Concentration in Air)
Not dangerously reactive	

STABILITY (To pH Change, Heat, Light)
Good

TOXIC PROPERTIES

TYPE OF CONTACT	CLASSIFICATION OF TOXIC PROPERTIES	
EYE	☐ MAY CAUSE NO RESPONSE OR NO MORE THAN VERY SLIGHT TO SLIGHT TRANSITORY PAIN AND/OR SLIGHT TRANSIENT CORNEAL INJURY AND/OR IRRITATION OF THE EYELIDS.	☐ MAY CAUSE SOME PERMANENT LOSS OF VISION (THIS INCLUDES DAMAGE TO CORNEA OR INTERNAL INJURY WHICH IS INCOMPLETELY HEALED IN ONE WEEK.)
	☒ MAY CAUSE SUFFICIENT INJURY TO THE EYE TO RESULT IN LOSS OF TIME FROM WORK. (THIS INCLUDES DAMAGE TO THE CORNEA WHICH HEALS OR NEARLY HEALS IN A WEEK AND/OR CONSIDERABLE CONJUNCTIVAL IRRITATION WITH EDEMA.)	☐ VAPOR EXPOSURE MAY CAUSE SEVERE PAIN, LACRYMATION OR SERIOUS INJURY TO THE EYES.
SKIN	☒ SINGLE PROLONGED EXPOSURE (HOURS) CAUSES NO EFFECT. SEVERAL REPEATED PROLONGED EXPOSURES MAY OR MAY NOT CAUSE THE DEVELOPMENT OF SOME SLIGHT IRRITATION.	☐ SINGLE SHORT EXPOSURE (MINUTES) MAY CAUSE CONSIDERABLE IRRITATION AND/OR SINGLE PROLONGED OR FREQUENTLY REPEATED SHORT POSURES CAUSE A BURN AND/OR MAY CAUSE SYSTEMIC INJURY, EVEN DEATH.
	☐ SINGLE PROLONGED EXPOSURE MAY CAUSE SOME REDDENING OF THE SKIN. REPEATED PROLONGED CONTACTS MAY CAUSE APPRECIABLE IRRITATION, POSSIBLY A MILD BURN AND/OR MAY CAUSE APPRECIABLE SYSTEMIC INJURY DUE TO ABSORPTION.	☐ AN EXPOSURE RAPIDLY CAUSES SEVERE BURNS AND/OR SERIOUS SYSTEMIC INJURY, EVEN DEATH.
INHALATION — DUST OR MIST	☐ NO SYSTEMIC INJURY EXPECTED. NO IRRITATION TO NOSE AND THROAT IN DUSTY OR MISTY ATMOSPHERES.	☐ DUSTY OR MISTY ATMOSPHERE PAINFUL TO NOSE AND THROAT (INTOLERABLE TO MOST PEOPLE) AND/OR EXPOSURE MAY CAUSE SERIOUS SYSTEMIC INJURY, EVEN DEATH.
	☐ THROAT AND NOSE IRRITATION IN A DUSTY OR MISTY ATMOSPHERE IS PAINFUL BUT NOT INTOLERABLE AND/OR PROLONGED OR REPEATED EXPOSURES MAY CAUSE SYSTEMIC INJURY.	☐ SHORT EXPOSURE (MINUTES) MAY CAUSE DEATH OR SERIOUS SYSTEMIC INJURY.
INHALATION — VAPOR (Tested at room temperature unless otherwise indicated.)	☒ EXPOSURES DO NOT CAUSE ANY EFFECTS OTHER THAN SOME VERY SLIGHT IRRITATION OR PAIN TO THE EYES OR RESPIRATORY PASSAGES AT THE MOST.	☐ EXPOSURES MAY CAUSE EXTREME DROWSINESS, AND/OR SERIOUS SYSTEMIC INJURY, AND/OR MAY CAUSE INTOLERABLE IRRITATION TO THE RESPIRATORY PASSAGES.
	☐ SINGLE EXPOSURES EXCEEDING 1/2 HOUR, OR FREQUENTLY REPEATED EXPOSURES OF SHORTER DURATION, MAY CAUSE SLIGHT ANESTHESIA AND/OR SLIGHT SYSTEMIC INJURY, AND/OR CAUSE APPRECIABLE, BUT NOT INTOLERABLE, IRRITATION OF RESPIRATORY PASSAGES.	☐ SHORT EXPOSURES MAY CAUSE UNCONCIOUSNESS, AND/OR SERIOUS SYSTEMIC INJURY, INCLUDING DEATH.
	☐ EVEN VERY SHORT EXPOSURE WILL CAUSE SERIOUS SYSTEMIC INJURY OR DEATH.	
INGESTION	☒ AMOUNTS WHICH MAY BE SWALLOWED INCIDENTAL TO INDUSTRIAL HANDLING WILL NOT CAUSE INJURY. HOWEVER, IF SUBSTANTIAL QUANTITIES SHOULD BE SWALLOWED, MORE OR LESS SERIOUS EFFECTS MAY OCCUR.	☐ AMOUNTS WHICH MAY BE SWALLOWED INCIDENTAL TO INDUSTRIAL HANDLING AND USE MAY CAUSE SERIOUS INJURY.

COMMENTS

000003

DOWANOL TBH

DEGREES OF EXPOSURE RELATED TO TYPES OF OPERATION		PRECAUTIONS (SEE CODE BELOW)				
		EYES	SKIN	INHALATION* DUST OR MIST	INHALATION* VAPOR	INGESTION
I NO CONTACT	CHARACTERIZED BY REMOTE OPERATION WITH EQUIPMENT ISOLATED FROM THE WORK AREA. THE PERSONS ENTERING ISOLATED AREAS WILL REQUIRE THE PERSONAL PROTECTION OUTLINED FOR IV BELOW.	A	A		A	A
II MINOR CONTACT	CHARACTERIZED BY CLOSED SYSTEMS WITH EQUIPMENT VENTED OUTSIDE THE WORK AREA; INSTRUMENT CONTROL; MECHANICAL HANDLING OF MATERIALS IN BULK. EXAMPLES ARE: CONTINUOUS REACTORS, STILLS AND FILTERS; ENCLOSED CONVEYORS; VENTILATED PACKAGING.	B	A		A	A
III OCCASIONAL DAILY CONTACT	CHARACTERIZED BY MANUAL HANDLING OF MATERIALS IN PACKAGES SUCH AS BAGS, DRUMS AND FIBERPAKS. VENTILATION MAY BE PROVIDED FOR SPECIFIC JOBS. MANY BATCH OPERATIONS FALL INTO THIS CATEGORY.	C	A		A	A
IV GROSS CONTACT LIKELY	CHARACTERIZED BY HAND OPERATION. EXAMPLES ARE: EMERGENCY REPAIRS, CLEANING EQUIPMENT, CLEANING FILTERS. TAKING CARE OF SPILLS, PACKAGING VOLATILE OR DUSTY MATERIALS WITHOUT VENTILATION, WHEELING AND TRAY DRYING.	C	B		B	A

EYE CONTACT

- A NO EYE PROTECTION NEEDED.
- B USE SAFETY GLASSES WITHOUT SIDE SHIELDS.
- C USE SAFETY GLASSES WITH SIDE SHIELDS.
- D USE CHEMICAL WORKERS GOGGLES.
- E USE GAS TIGHT GOGGLES OR A FULL FACE GAS MASK.

SKIN CONTACT**

- A A BATH AND CLEAN CLOTHES ONCE PER WEEK ALONG WITH THE USUAL WASHING AT MEALTIMES SHOULD BE ADEQUATE PRECAUTIONS.
- B GROSSLY CONTAMINATED CLOTHING AND SHOES MUST BE REMOVED NOT LATER THAN THE END OF THE WORK PERIOD AND MUST BE THOROUGHLY CLEANED BEFORE RE-USE.
- C REQUIRE SHOWER AT THE END OF THE WORK PERIOD AND CLEAN CLOTHING FROM THE SKIN OUT AT THE START OF EACH WORK DAY.
- D CLOTHING SHOULD BE CHANGED AND SKIN WASHED PROMPTLY UPON ANY DETECTABLE CONTACT. EACH USE WILL REQUIRE SPECIAL CONSIDERATION TO DETERMINE SUITABLE PROTECTIVE DEVICES AND STANDARDS OF PERSONAL CLEANLINESS.
- E IMPERVIOUS CLOTHING SUCH AS RUBBER BOOTS, RUBBER APRONS, AND RUBBER GLOVES WILL BE REQUIRED. SPECIFIC ITEMS WILL BE DICTATED AS REQUIRED BY CIRCUMSTANCE.

INHALATION — DUST OR MIST

- A NO RESPIRATORY PROTECTION.
- B NO PROTECTION REQUIRED FOR EXPOSURE OF THIRTY MIN. DURATION OR LESS TO OBVIOUSLY DUSTY ATMOSPHERES. EXPOSURES OF LONGER DURATION WILL REQUIRE THE USE OF A DUST RESPIRATOR BEARING THE APPROVAL OF THE U.S. BUREAU OF MINES FOR THE USE WITH TOXIC DUSTS.
- D ANY EXPOSURE TO OBVIOUSLY DUSTY ATMOSPHERES WILL REQUIRE A DUST RESPIRATOR BEARING THE APPROVAL OF THE U.S. BUREAU OF MINES FOR USE WITH TOXIC DUSTS.
- E ANY EXPOSURE TO DUSTY ATMOSPHERES WILL REQUIRE THE USE OF AN AIRLINE RESPIRATOR, BLOWER MASK, OR CHEMOX MASK.

INHALATION — VAPOR

- A NO PRECAUTIONS NECESSARY.
- B NO PRECAUTIONS NECESSARY FOR SINGLE EXPOSURES OF LESS THAN 1/2 HOUR. LONGER SINGLE EXPOSURES, OR FREQUENTLY REPEATED EXPOSURES WILL REQUIRE A GAS MASK OR RESPIRATOR EQUIPPED WITH APPROPRIATE CANISTER.
- C NO PRECAUTIONS NECESSARY FOR SINGLE EXPOSURES OF NO MORE THAN TEN MINUTES. LONGER EXPOSURES EITHER SINGLE OR REPEATED, WILL REQUIRE GAS MASK OR RESPIRATOR EQUIPPED WITH APPROPRIATE CANISTER.
- D GAS MASK WITH APPROPRIATE CANISTER REQUIRED AT ALL TIMES.
- E EVACUATE AREA AT ONCE AND ENTER ONLY WITH AIRLINE RESPIRATOR, BLOWER MASK OR CHEMOX MASK.

INGESTION

- A NO UNUSUAL PROCEDURES REQUIRED.
- E FOOD AND TOBACCO SHOULD NOT BE PRESENT IN THE WORK AREA. HANDS AND FACE SHOULD BE WASHED BEFORE SMOKING AND EATING.

COMMENTS

**GOOD PRACTICE REQUIRES THAT GROSS AMOUNTS OF ANY CHEMICAL BE REMOVED FROM THE SKIN AS SOON AS IS PRACTICAL

*SUITABLE GAS MASK CANISTER

Organic vapor

REVISED

SIGNED L. W. Rampy CHECKED R. D. Olson

DATE 1/21/74 DATE 10/28/74

000004

FORM C-10169 PRINTED IN U.S.A. 11-67

Summary of Acute Inhalation Toxicity

Material Tested: Dowanol FBH (yellowish liq)

Methods:
1) species: rat
2) sex: ♂
3) # exposed: 6
4) # control: 5
5) chamber type: 19L glass jar
6) bubbler temperature: 100°C
7) airflow: 1LPM
8) duration of exposure: 7hrs
9) nominal vapor concentration: 6.52 mg/L

Observations and Results

A) Observations During Exposure

(1) no signs of toxicity, irritation, or mortality

or 2)

B. Observations Post Exposure

(1) no signs of toxicity irritation or mortality

or 2)

(3) Mean body weight gain of exposed animals was comparable to the mean body weight gain of control rats.

or 4)

(5) Terminal body weights exceeded the pre-exposure body weights.

or 6)

C. Gross Pathology

(1) NVL in a single control and exposed animal sacrificed 24 hours post exposure.

or 2)

3) NVL in the remaining exposed and control animals sacrificed 2 weeks post exposure.

or 4)

5) NVL in _____ animals which died _____

or 6)

R.E. Hefner, Jr.
2/8/74

B.R.J. Leong
2/8/74

ITEM GRADE _____ ACCOUNT NO. _____

CHARGE NO. _____

MATERIAL: Dowanol TBH

_____ % SOLUTION IN:

☒ UNDILUTED ☐ WATER ☐ CORN OIL

SPECIES: ☒ RAT ☐ CAVY ☐ RABBIT ☐ MOUSE

SEX: ☒ MALE ☐ FEMALE

☐ WEIGH OUT ☐ (OTHER)

CAGE	DATE FED	ANIMAL MARKING	WEIGHT GM.	DOSE GM./KG.	DOSE CC.	ANIMAL WEIGHT (GM.) 12/14	12/20	12/27	DAT
132-7	12/13/73 9:50	00	217	3.98	.85	✓	sick		
		01	216		.85	✓	Dead - 2 Hrs.		
		10	215		.85	✓	Dead - 1 Hr.		
-8		11	211		.83	✓ 212	267	323	Sac
		02	209		.82	✓	Dead - 1 Hr.		
		20	203		.80	✓ 195	272	327	
			D.B		Hoy	D.B.	D.B.	D.B	

OBSERVATION BY

000007

COMMENTS ON BACK OF THIS PAGE

SIGNED R Keeler

DATE 12-27-73

FORM C-40880

(FRONT)

CHARGE NO. _____

MATERIAL: Dowanol TBH — Sp G. 1.012 — % SOLUTION IN: ☒ UNDILUTED ☐ WATER ☐ CORN OIL

SPECIES: ☒ RAT ☐ CAVY ☐ RABBIT ☐ MOUSE — SEX: ☒ MALE ☐ FEMALE — ☐ WEIGH OUT ☐ (OTHER)

CAGE	DATE FED	ANIMAL MARKING	WEIGHT GM.	DOSE GM./KG.	DOSE CC.	ANIMAL WEIGHT (GM.) 12/14	12/20	12/27 — DATE
132-1	12-13-73 9:46	00	210	0.5	.10	240	295	332
		01	205		.10	198	261	347
		10	216		.10	237	281	321
-2		11	207		.10	235	282	320
		02	221		.11	251	295	341
		20	200		.10		pulled	
-3		00	189	1.0	.19	220	278	310
		01	214		.21	237	283	320
		10	185		.18	208	262	303
-4		11	217		.21		pulled	
		02	204		.20	230	281	316
		20	200		20	233	284	335
-5		00	191	2.0	.38	195	250	291
		01	199		.39		pulled	
		10	213		.42	226	285	334
-6		11	195		.39	198	251	284
		02	205		.41	182	252	297
		20	208		.41	234	279	314
			O.B		Hot	O.B.	O.B	O.B.

OBSERVATION BY

000003

COMMENTS ON BACK OF THIS PAGE

SIGNED

DATE 12-27-73

FORM C-40580

(FRONT)

ACCOUNT NO. _____

CHARGE NO. _____

MATERIAL: Dowanol TBH Controls | MOLECULAR WEIGHT: | SPECIES: RAT, OR: | SEX: ☐ MALE ☐ FEMALE | CAGE NO.: 370-25

CONDITIONS OF EXPOSURE

VAPOR OR GAS CONC. P.P.M. | SAT. VAPOR AT °C HOURS | PUMP HOUSE TEMP. °C | ROOM TEMP. °C

☐ LIQUID AEROSOL ☐ DUST Mg. M³ | ☐ 19 L. GLASS JAR | CHAMBER NO. | METHOD ☐ A ☐ B ☐ C

CONDITIONS OF OPERATION

SINGLE SYRINGE PUMP	DUAL SYRINGE PUMP	AIR FLOW
SYRINGE NO.	☐ GAS BAG RESERVOIR ☐ LIQUID RESERVOIR	ROTAMETER NO.
SPEED SETTING	DELIVERY ML/HR. R.P.M. MOTOR	SETTING CM.
DELIVERY ML./MIN.	DRIVE GEAR TEETH CHANGE GEAR TEETH	DELIVERY L./MIN.

ANIMAL MARK →		7	8	9	10	11					
DATE	OBSERVATION BY	BODY WEIGHT, GRAMS									
1/2/74	REH	266	300	274	310	263					
1/3/74	REH	270	299	272	313	268					
1/7/74	REH	[illegible]	323	298	332	283					
1/9/74	REH	[illegible]	330	305	347	290					
1/11/74	REH	[illegible]	344	318	360	302					
1/14/74	REH	[illegible]	359	330	376	310					
1/16/74	REH		365	338	385	315					
				sent to Path 1/16/74 REH							

REMARKS

TIME AIRFLOW STARTED	
TIME EXPOSURE STARTED	
TIME EXPOSURE ENDED	
TOTAL RUNNING TIME	
WT. BUBBLER BEFORE	G.
WT. BUBBLER AFTER	G.
AMOUNT USED	G.
CALC. APPROX. SATURATED VAPOR CONC.	P.P.M.

SIGNED R. E. Hefner Jr. DATE 1/16/74

FORM C-7789 PRINTED IN U.S.A. 65-69

(FRONT)

000009

ACCOUNT NO.______________

CHARGE NO.______________

MATERIAL	MOLECULAR WEIGHT	SPECIES	SEX
Dowanol TBH		RAT. OR:	☒ MALE ☐ FEMALE
		CAGE NO. 370 - 26	

CONDITIONS OF EXPOSURE

VAPOR OR GAS CONC. P.P.M.	SAT. VAPOR AT 100 °C HOURS	PUMP HOUSE TEMP. °C	ROOM TEMP. °C
☐ LIQUID AEROSOL ☐ DUST Mg./M³	☒ 19 L. GLASS JAR	CHAMBER NO.	METHOD ☐ A ☐ B ☐ C

CONDITIONS OF OPERATION

SINGLE SYRINGE PUMP	DUAL SYRINGE PUMP		AIR FLOW
SYRINGE NO.	☐ GAS BAG RESERVOIR	☐ LIQUID RESERVOIR	ROTAMETER NO.
SPEED SETTING	DELIVERY ML./HR.	R.P.M. MOTOR	SETTING CM.
DELIVERY ML./MIN.	DRIVE GEAR TEETH	CHANGE GEAR TEETH	DELIVERY 1 L./MIN.

ANIMAL MARK →		1	2	3	4	5	6				
DATE	OBSERVATION BY	BODY WEIGHT, GRAMS									
1/2/74	REH	262	306	309	300	293	278				
1/3/74	REH	267	305	312	304	298	288				
1/7/74	REH	sent to path 1/3/74 REH	326	333	326	303	300				
1/9/74	REH		328	337	330	311	308				
1/11/74	REH		340	350	336	323	315				
1/14/74	REH		346	360	347	337	330				
1/16/74	REH		358	373	354	346	338				
			sent to path 1/16/74 REH								

REMARKS

1/2 — no signs of toxicity or irritation. All respond normally to external stimuli.
REH.

TIME AIRFLOW STARTED	8¹⁵
TIME EXPOSURE STARTED	8³⁰
TIME EXPOSURE ENDED	3³⁰
TOTAL RUNNING TIME	7 hrs.
WT. BUBBLER BEFORE	353.26 G.
WT. BUBBLER AFTER	350.52 G.
AMOUNT USED	2.74 G.
CALC. APPROX. SATURATED VAPOR CONC.	P.P.M.

$$\frac{2{,}740\,mg}{420\,L} = 6.52\,mg/L$$

SIGNED R.E. Hefner Jr. DATE 1/2/74

FORM C-7780 PRINTED IN U.S.A. 88-63

000010 (FRONT)

I.B.M. GRADE ______ ACCOUNT NO. ______

EAR ______

INTACT ABDOMEN ______

ABRADED ABDOMEN ______ CHARGE NO. ______

MATERIAL: Dowanol + BH

RABBIT NO. 334 07

CASE NO. 207 142-1

TEST BY REPEATED APPLICATION AS ____ % MATERIAL SOLUTION IN:

DATE		12/10	12/11	12/12	12/13	12/14	12/17	12/18	12/19	12/20	12/21	12/24	12/31		
DAYS ON EXPOSURE		0	1	2	3	4	7	8	9	10	11	14	21		
ON EAR	APPLICATION NO.	1	2	3	4	5	6	7	8	9	10	—	—		
METHOD A*	HYPEREMIA		3	3	3	3	3	3	3	3	3	2	1		
	EDEMA		1	1	1	1	1	1	1	1	1	1	1		
	NECROSIS		1	1	1	1	1	1	1	1	1	1	1		
	EXFOLIATION		1	1	1	1	1	1	1	1	1	1	1		
	HAIR LOSS		1	1	1	1	1	1	1	1	1	1	1		
	SCAB		1	1	1	1	1	1	1	1	1	1	1		
	SCAR		1	1	1	1	1	1	1	1	1	1	1		
	THICKNESS (MM)														
ON ABDOMEN INTACT	APPLICATION NO.	1	2	3	4	5	6	7	8	9	10	—	—		
METHOD B*	HYPEREMIA		1	1	1	1	1	1	1	1	1	1	1		
	EDEMA		1	1	1	1	1	1	1	1	1	1	1		
	NECROSIS		1	1	1	1	1	1	1	1	1	1	1		
	EXFOLIATION		1	1	3	3	3+	3+	3+	3+	3+	3	1		
	SCAB		1	1	1	1	1	1	1	1	1	1	1		
	SCAR		1	1	1	1	1	1	1	1	1	1	1		
	THICKNESS (MM)														
ON ABDOMEN ABRADED	APPLICATION NO.	1	2	3	—	—	—	—	—	—	—	—	—		
METHOD C*	HYPEREMIA		3	1	1	1	1	1	1	1	1	1	1		
	EDEMA		1	1	1	1	1	1	1	1	1	1	1		
	NECROSIS		1	1	1	1	1	1	1	1	1	1	1		
	EXFOLIATION		1	1	3	3	3+	3+	3+	3+	3	3	1		
	SCAB		1	1	1	1	1	1	1	1	1	1	1		
	SCAR		1	1	1	1	1	1	1	1	1	1	1		
WEIGHT IN KG		3.25					3.0					3.2	3.30		
OBSERVATION BY		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

*COMMENTS ON BACK OF THIS PAGE

SIGNED: [signature] DATE: 12/31/73

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000011

FDM GRADE:
COLOR:
ODOR: Sol. acetone EtOH

ACCOUNT NO. ___________
CHARGE NO. ___________

878216074

EYE CONTACT TEST

BIOCHEMICAL RESEARCH LABORATORY

MATERIAL: Dowanol TBH

RABBIT NO. 278

SEX: [X] MALE [ ] FEMALE

CAGE NO. 200-2

CONCENTRATION ___ % W/V [X] UNDILUTED

SOLVENT: [ ] WATER [ ] PROPYLENE GLYCOL [ ] (OTHER)

COMMENTS	RESPONSE		NOT WASHED (LEFT)	WASHED (RIGHT)	DATE AND INITIALS
IMMEDIATE:	PAIN		1	1	12/11/73 Hoy
	CONJUNCTIVA		1	1	
	CORNEA		1	1	
AFTER ONE HOUR (OR ___ HOURS)	CONJUNCTIVA		1	1	12/11 Hoy
	CORNEA	BEFORE STAIN	3	2	
		AFTER STAIN	4	4	
	INTERNAL EFFECTS *		1	1	
AFTER 24 HOURS	CONJUNCTIVA		4	4	12-12 TK
	CORNEA	BEFORE STAIN	4	4	
		AFTER STAIN	4	4	
	INTERNAL EFFECTS *		3	3	
AFTER 48 HOURS	CONJUNCTIVA		3	3	12-13 Hoy
	CORNEA	BEFORE STAIN	3	3	
		AFTER STAIN	4	4	
	INTERNAL EFFECTS *		3	3	
AFTER 8 DAYS	CONJUNCTIVA		1	1	12/19/73 Hoy
	CORNEA	BEFORE STAIN	1	1	
		AFTER STAIN	1	1	
	INTERNAL EFFECTS *		1	1	

* DESCRIBE UNDER COMMENTS

SIGNED [signature]

DATE 12/19/73

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